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A FORCED-CHOICE PROCEDURE FOR MEASUREMENT OF PUPILS' ATTITUDES TOWARD MAJOR DIMENSIONS OF WORK, REPORT NUMBER 3.

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AN INSTRUMENT WAS DEVELOPED AND PILOT TESTED FOR MEASURING OCCUPATIONAL ATTITUDES OF SECONDARY SCHOOL STUDENTS TOWARD COMPONENT DIMENSIONS OF NONPROFESSIONAL-LEVEL WORK INVOLVED IN OFFICE, RETAIL, HEALTH SERVICE, AND CONSTRUCTION VOCATIONS. THE DIMENSIONS MEASURED WERE TOOLS, MATERIALS, NATURE OF TASKS, PERSONAL RELATIONSHIPS, AND PHYSICAL ENVIRONMENTS. THE INSTRUMENT PROVIDED A MEANS OF CONFRONTING SUBJECTS WITH THEORETICALLY "TOTAL" WORK SITUATIONS AND MEASURING THEIR PREFERENCES FOR "TOTAL" SITUATIONS OVER RESERVATIONS THEY WOULD HAVE ABOUT SOME DIMENSIONS. A TOTAL OF 153 SUBJECTS FROM THE SEVENTH, EIGHTH, AND NINTH GRADES WERE USED FOR TESTING. A RELIABILITY MEASURE FOR THE STUDENT TESTS WAS OBTAINED BY USING THE INSTRUMENT TO INTERVIEW 20 ADULTS WITH SEVERAL YEARS OF WORK EXPERIENCE. TEST RESULTS INDICATED THE INSTRUMENT'S POTENTIAL COUNSELING SUITABILITY FOR HELPING STUDENTS BETTER ANALYZE AND UNDERSTAND THEIR OCCUPATIONAL INTERESTS. THE AUTHORS SUGGESTED THAT THE INSTRUMENT MIGHT ALSO BE USEFUL IN DETERMINING THE WAYS WHICH VOCATIONAL ATTITUDES OF INDIVIDUALS AND GROUPS ARE INFLUENCED BY SOCIOECONOMIC STATUS, AGE, AND SEX DIFFERENCES. PLANS FOR FURTHER VALIDATION AND STANDARDIZATION WERE RECOMMENDED. THIS VOLUME REPRESENTS PART 3 OF THE 13-PART FINAL REPORT ON THE VOCATIONAL-TECHNICAL EDUCATION RESEARCH AND DEVELOPMENT PROJECT OF WASHINGTON STATE UNIVERSITY. RELATED VOLUMES ARE ED 010 652 THROUGH ED 010 664. (JH)

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A FORCED-CHOICE PROCEDURE FOR MEASUREMENT OF PUPILS' ATTITUDES TOWARD MAJOR DIMENSIONS OF WORK

Project No. ERD-257-65
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Report No. 3

by

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INTRODUCTION

Background and Rationale

Attitudes, perceptions, and aspirations constitute a complex of motivational factors influencing pupils' occupational interest and their willingness to pursue educational programs requisite for successful careers. Motivational factors also affect the satisfactions people derive from work. In a free and increasingly diversified society educators have an obligation to help pupils make occupational choices most likely to yield reasonable amounts of success and satisfaction. To fulfill that obligation, teachers and counselors need means of obtaining information about the occupational attitudes, perceptions, and aspirations of individuals and groups. Information about factors affecting those elements of motivation are essential for effective guidance and teaching. Such facts will provide teachers and counselors with more precise definitions of pupils' present states of mind. Such facts will also help teachers and counselors define the behavioral changes necessary for pupils to make vocational choices congruent with modern opportunities and to acquire occupational competence.

For those reasons five staff members of Project ERD-257-65 and four graduate assistants have made interrelated efforts to develop questionnaires and interview procedures designed to provide facts about pupils' occupational aspirations, attitudes, and perceptions.

Walter L. Slocum, Roy Bowles, and William A. Rushing[1] have developed and utilized two questionnaires that provide exceptionally comprehensive facts about pupils' occupational aspirations and expectations. Those instruments also identify social-economic factors with which aspirations and expectations are associated. Roy T. Bowles is presently at work on an instrument that will provide similar data pertaining to pupils' perceptions of occupational opportunities.

LeRoy C. Olsen,[2] assisted by three doctoral students, is developing a projective technique procedure that will measure pupils' attitudes toward major dimensions of some male occupations most likely to provide employment opportunity for substantial percentages of non-college bound youth. The dimensions measured are tools, materials, nature of tasks performed, personal relationships, and physical environment. A series of ten symbolic drawings and interview questions used to evoke pupil responses has been developed and is presently being validated.

Purpose and Objective

Development and pilot testing of this Selected Occupational Attitudes Inventory constitutes an effort to develop a forced-choice instrument that

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[1] See Project ERD-257-65, Report No. 1, by Walter L. Slocum and Roy T. Bowles, "Educational and Occupational Aspirations and Expectations of High School Juniors and Seniors in the State of Washington with Special Reference to those Not Planning to Obtain a College Degree."

[2] See Project ERD-257-65, Report No. 2, by LeRoy C. Olsen, "Development and Standardization of a Projective Occupational Attitudes Test."

wil provide similar measures of pupils' attitudes toward component dimensions of non-professional level work involved in office, retail, health service, and construction occupations. Bureau of Labor Statistics projections indicate that these are some of the occupations in which substantial percentages of non-college bound youth will find employment opportunities. The occupational dimensions toward which attitudes are measured are tools, materials, nature of tasks performed, personal relationships, and physical environment. Comparison of results obtained by this procedure with those obtained by the projective technique described above will help validate both procedures.

Related Research and Concepts

Measures of young people's attitudes toward various kinds of work are commonly based on responses to names of occupations, or to phrases presumed to connote general types of work. Examples are "nursing," "retailer," "civil engineer," "secretary," "repairing a clock," "interviewing clients," "repairing automobiles."

What is known about perception and semantics indicates that to most pupils such words and phrases are likely to connote misleading perceptions of the occupational realities involved. The extent of this hazard is documented by the work of Quine (6), Hayakawa (4), Schramm (7), and Wertheimer (4).

For example, few high school girls have had actual experience with the specific tasks, materials, equipment, working conditions, or human relationships involved in being a "nurse" or an "airline stewardess." Few boys are familiar with those dimensions of the work actually done by a "baker," an "engineer," a "laboratory technician," or a "banker." Responses to verbal or pictorial symbols for which the respondent has no experience referent are likely to be biased and misleading. Consequently, pupil attitudinal responses to items such as "nurse," "stewardess," "baker," or "engineer" probably are quite imprecise measures of their attitudes toward the actualities of work involved in the occupations.

Substantiated principles of perception and semantics and the work of Breer (1) indicate that more precise measures of attitudes toward specific tasks involved in various occupations require instruments designed to obtain responses to stimuli (words, pictures) that symbolize specific task components familiar to the respondent--items for which he has experience referents.

Likewise, it appears necessary to obtain responses to major interrelated dimensions of the occupations symbolized. Consequently, instruments must be designed not only to evoke responses to single acts, tools, and/or equipment, materials, working environment, and personal relationships involved in occupations, but also to combinations of those dimensions.

The Strong Vocational Interest Blank (SVIB), the Kuder Preference Record, and the Occupational Interest Inventory by Lee and Thorpe are examples of interest inventories which provide means of measuring occupational interests and thus have some similarities to this forced-choice instrument. Strong (8) tried to select activities or topics that adolescents would be

able to imagine, such as work in a laboratory, being an aviator, or repairing a clock. This forced-choice technique differs from that of Strong in both concept and procedure. It is designed to evoke responses to more precisely defined component elements of work situations rather than to generalities, the actualities of which, pupils may only vaguely, or unrealistically, comprehend. Consequently, this instrument avoids both the use of job titles and Strong's empirical keying. In keying, this instrument is more similar to that which Cronbach (2) refers as logical keying. Kuder (5) in the construction of his inventory conceptualized clusters of traits, to which pupils could be matched. The primary distinction between these three previous approaches and the instrument and procedures reported here is that the latter is designed to measure singly, and in combination, attitudes toward specific acts, tools, materials, working environment, and human relationships involved in occupations. Such measures can provide teachers and counselors with more precise information about pupils' present attitudes towards types and tasks and situations constituting the increasing diversity of occupational alternatives and requirements confronting modern youth.

The educational significance of instruments providing more precise information about attitudes toward the actual components of occupational functions and requirements is highlighted by Dugan's definition of vocational guidance as the "process of helping an individual to understand accurately both himself and the world of work--in particular, the specific educational and job requirements of occupations in which he may be interested and for which he may be qualified" (2).

METHOD

A basic assumption in the development of this inventory is that when an experienced worker states that he "likes" his job, he actually means that he likes more dimensions of the job than he dislikes, or at least that one dimension may be much more important than other dimensions as perceived by the individual. Accepting this assumption, it is logical to hypothesize the possibility of measuring individual attitudes toward dimensions and combinations of dimensions in such a way that the subject may be forced to accept a previously rejected dimension in order to accept one that he desires. By continually combining dimensions, the subject can be induced to indicate a current job choice based on consideration of acts, tools, materials, working environment, and human relationships involved in an occupation.

This instrument and procedure provides a means of confronting subjects with theoretically "total" work situations and measuring their preferences for "total situations" even though they may have reservations about some dimensions. This is done by first obtaining subjects' preferences for statements denoting pairs of separate variables (dimensions). Then, in sequence, subjects' preferences for statements including more dimensions are obtained until, finally, subjects indicate preferences for statements embodying all of the five-dimension combinations of "entire" job situations. The entire job choice can then be compared with each of the five single dimension choices to ascertain which, if any, of the single dimensions remain in the final, total job choice.

Each choice in the inventory is a forced choice reflecting positive or negative attitudes.

Data are then organized to show a ranking of preferences for each variable, for combinations of variables, and for "total work situations." Only after this point has been reached should any reference be made to specific job titles, such as nurse or automobile mechanic, since the instrument attempts to avoid general responses to such titles.

Design and Experimental Use of the Instrument

The inventory is designed so that each subject arrives at nine answers (preferences) derived from nine groups of questions, having ten forced-choice questions in each group--a total of 90 questions.

The first ten questions deal with the dimension, "tools." For example, representative tools utilized in the construction occupations are paired against those used in office work, and the subject states which tools he prefers. This procedure is continued until reponses to items indicating tools used in each occupation have been compared with responses to those tools used in the other occupations. In order for a subject to have a stated preference for office tools he must have chosen office tools each of the four times in which office tool choices were presented in the first ten questions--those which deal only with tools.

After the series of tool questions are answered, the same procedure is repeated for the dimensions of environment, materials, acts, and relationships. After 50 questions, the subject has selected enough dimensions separately to constitute a total job, but his individual choices are not necessarily from the same occupational area since he is selecting what amounts to his "ideal" job choice and, in actual life, such a combination of dimensions may not exist. Appendix A shows the representative occupational areas and dimensional examples used to construct this inventory.

Theoretically, the inventory now asks, "If you must give up one or more of your ideal dimensional choices in order to keep another dimension, which will you keep?" In other words, beginning with item 51, the questionnaire presents the subject with various combinations of occupational dimensions which continually accrue until he is forced to choose one of the five total job areas. The five dimensions chosen individually in the first 50 questions may then be compared with the subject's total job choice as indicated by his responses to the final ten items of the questionnaire. The result is determined by which dimensions the subject retained or rejected as he was being forced to choose one of the five occupational areas.

Beginning with item 51 the final 40 questions, in series of ten, require a subject to choose combinations of tools and acts; environments and relationships; tools, acts, environments, and relationships; then the total combinations of tools, acts, materials, environments, and relationships. If a subject had chosen tools that go with construction, and acts which go with office, for example, the combinations of tools and acts then force him to choose between tools or acts as being most meaningful to him since each of the combinations is from only one occupational area rather than the two he prefers as single dimensions. The cumulative combination

of dimensions forces the subject to continue such choices until some total job area is chosen. At that stage a counselor is able to analyze the data to determine which of the five dimensions were sufficiently meaningful to the subject to be retained in the final job choice. Data showing which dimension or dimensions--tools, environment, materials, acts, or relationships--were retained as part of the total job choice, will indicate which have the most psychological value to the subject. The First Preference Recording Form (Appendix C) is an example of a scored response sheet which the counselor may examine. This example was scored by hand but a comparable method could be developed for machine scoring.

Pilot Test of Inventory

The subjects used for testing the Selected Occupational Attitudes Inventory were 72 females and 81 males from the seventh, eighth, and ninth grade classes of three Washington school districts in Skagit and Whatcom counties. Table 1 shows the composition of the population by schools, grade level, and sex.

TABLE 1

Population of Students Involved in Pretesting the Selected Occupational Attitudes Inventory

School	Grade	Sex	Number
Whatcom	Ninth	Female	8
Burlington	Ninth	Female	11
Whatcom	Eighth	Female	8
Lincoln	Eighth	Female	13
Whatcom	Seventh	Female	15
Jefferson	Seventh	Female	17
Whatcom	Ninth	Male	14
Burlington	Ninth	Male	6
Whatcom	Eighth	Male	9
Lincoln	Eighth	Male	20
Whatcom	Seventh	Male	13
Jefferson	Seventh	Male	21
Total			153

The students are believed to represent a broad cross-section of ability since they were all unselected members of general education classes which were not grouped according to ability or performance.

Each pupil was furnished with an I.B.M. answer sheet and a booklet containing directions and questions for the Selected Occupational Attitudes Inventory (see Appendix B).

Directions were read aloud by the test administrator, who was careful to be sure that each student understood what to do. A sample question was then asked while the administrator demonstrated the answering procedure. The test administrator collected the papers immediately after each group was finished. Administration of the inventory required about 30 minutes.

A reliability measure for the inventory was obtained by using it to interview 20 adults with several years of work experience. An adult population was used for this purpose because it was assumed that adult attitudes toward various occupational dimensions are probably more stable than those of young people with no work experience.

PILOT TEST RESULTS

None of the groups tested appeared to have significant difficulty following directions or responding to the items with meaningful results. One answer sheet had to be discarded due to illegible answers.

An array of interesting information was collected regarding the importance of the various dimensions in occupational selection. This is most meaningful when examining the results of individual subjects since the cumulative group results tend to cancel each other out to a certain extent. There were, however, some interesting group results which will be reported here.

Primarily of interest was the fact that the attitudes of the young students questioned appear to be quite definite with regard to the dimensions of occupations, even though their occupational choice by job title may seem quite unrealistic. The inventory appears to be an effective device for stimulating interest in occupational choice. Of the 67 students who were asked before answering the questionnaire to state their occupational preference, 28 per cent listed no preference. On the other hand, only 7 per cent of the 87 stating an occupational preference after answering the questionnaire were unable, or lacked the desire, to do so. When calculated using Chi-square, this difference is shown to be highly significant. The resulting figure of 12.8, with one degree of freedom, is significant well beyond .001.

The meaning here, presumably, is not that the latter group was more realistic but rather that they were more disposed to examine the world of work after being stimulated by the inventory. This implies that use of the inventory activates thoughtful evaluation of occupational alternatives.

It was also found that among students and adults alike, occupational dimensions take on new meaning when presented as combinations of possible alternatives. For example, many subjects expressed preference for tools used in one occupation, but acts associated with another. This indicates they like certain tools utilized in an occupation better than the types of acts involved in the use of the tools.

The analysis of results, to see which dimensions--acts, tools, materials, environment, and relationships--function as the main factor affecting a person's total job preference indicate that subjects show considerable

variation in what is the most significant factor in final choice. Table 2 shows the percentages of subjects indicating preferences for each of the occupational dimensions. In order for a dimension to be tabulated as a preference, it had to be selected by the subject as an individual dimensional preference and also remain as part of the total job preference.

TABLE 2

Per Cent of Subjects Indicating Preferences for Each of the Occupational Dimensions

Group	Tools	Environments	Materials	Acts	Relationships
9th Grade Females	42	26	32	53	32
9th Grade Males	42	47	68	63	26
8th Grade Females	29	5	57	62	38
8th Grade Males	28	32	36	36	44
7th Grade Females	47	31	50	63	47
7th Grade Males	36	31	47	58	52
Total Females	40	28	47	59	39
Total Males	35	35	48	53	39
Mean--All	38	29	47	57	45

Junior high school students serving as subjects indicated that acts were the most important consideration in their job preferences. The mean of 57 per cent is considerably higher than the mean of any other dimension. On the other hand, environment appears to be relatively unimportant by comparison. By comparing the means of tools and acts it may be assumed that, to this group of students, the two seemingly closely related dimensions are actually quite unrelated psychologically.

Due to the nature of the forced-choice instrument, subjects were required to choose a preferred dimension in each of ten questions. If the subject is inconsistent even once in his preference responses, the result may be that no single answer can be computed for that ten-question series. If his inconsistencies are among choices with his low preference the results will not be affected since all low preferences cancel out. On the other hand, carelessness or inability to distinguish between values of high preference result in two or three answers to that ten-question series. In this case, no one preference can be singled out as contributing to the total job choice.

Some inconsistencies did enter into the answers of junior high school students interviewed for this study, and thus resulted in one or more of the nine final answers being unanalyzable. There is no way to determine with certainty whether this was caused by an honest inability to make choices, or by lack of concern. If lack of concern was the cause, it would be possible for a person to end up with none of the nine final questions answered. It was found, however, that the mode was nine out of nine

answered. The mean was 1.02 unanswered, with a standard deviation of 1.1. By running an additional study, it was determined that the probability of a person obtaining answers to eight out of nine of the complex final answers, on the basis of response sets, is about .003. This figure was obtained from 25 college students who were asked to mark the answer sheet without seeing the questions. Their sheets were then scored and used as an indication of response sets, and compared with the norm group.

Validity

Since the Selected Occupational Attitudes Inventory measures attitudes toward dimensions of occupations rather than specific occupations, there has been no serious need to determine the validity of the examples used to represent occupational areas. Since validity has not been fully established, the instrument cannot be used as a predictor of attitudes toward specific occupations, or as the basis for urging subjects to enter specific occupations. It is intended only to help the subject understand himself in terms of his attitudes toward dimensions of occupations which he may be considering, or will consider.

Reliability

Reliability was established by the test-retest method with a three-day interval. As mentioned earlier, an adult group of 20 subjects was used for measuring reliability because it was assumed that their attitudes are more stable than those of young people with no experience in the world of work.

Reliability is high, with 71 per cent of the final nine answers being unchanged. Table 3 shows the reliability for each of these final nine answers. When computed in composite groups, it can be seen that the instrument shows increasing reliability as the questions come closer to simulating a total job choice. Total stability for the single dimensions of a job is 68 per cent while combinations of dimensions are 72 per cent stable and the final job choice is 83 per cent stable.

Follow-up study by the test-retest method would provide useful data regarding the stability of young people's interests, but it would not be a valid indicator of the instrument's reliability if their attitudes are found to be unstable.

The Inventory is reproduced in Appendix D.

DISCUSSION

This study was conducted for the purpose of developing an instrument which will aid counselors to help pupils better analyze and understand their occupational interests. Preliminary tests of the instrument reveal several qualities indicating its potential suitability for that purpose. It is also possible that the inventory can be used to determine socio-economic status, age, and sex differences in attitudes toward occupational dimensions.

TABLE 3

Per Cent of Stability of Dimensions and Their Combinations

Dimensions	Per Cent
Tools	67
Acts	92
Materials	75
Environments	25
Relationships	83
Tools-Acts	58
Environments-Relationships	75
Tools-Acts-Environments-Relationships	83
Tools-Acts-Materials-Environments-Relationships	83

The Inventory provides a means for obtaining meaningful results from junior high school age pupils as well as from adults. On the basis of limited use with elementary school children, there are also indications that even younger students are capable of understanding and answering the inventory, although no lower age limit was determined. The only noticeable difference in the performance of various age groups was in their test-taking attitudes. Adults realize that many of the questions are equally applicable to men and women since their roles in society are often interchangeable. The younger students often do not perceive the relevance of some questions, however, and possibly discount some choices as seemingly suitable only to the opposite sex. They refer to some items as being boy's jobs or girl's jobs.

The author's experience indicates that results are more valid if the method of test administration forces the subject to respond without opportunity to review previous answers. It was found that a separate group of adults who were asked to answer the questions in their spare time tended to try so hard for consistency that they often changed their original preferences, or referred to earlier answers as a basis for making choices. They seem then to be more concerned with consistency than with valid results.

There is little reason to believe that results obtained by individual or group administration would be substantially different. Certainly, group administration has the advantage of efficiency in time; but individual administration gives the subject greater individual attention. So far, however, the use of the Inventory has been too limited to justify comparison of the two methods.

The test is so constructed that it may be scored by machine or by hand. A person trained to do so can score a questionnaire by hand in about two minutes.

RECOMMENDATIONS

The inventory shows sufficient promise to justify further validation and standardization. Such effort will be conducted by Warren K. Garlington during the second stage of Project ERD-257-65 work.

In the process of validation and standardization the inventory can be utilized to obtain facts about ways in which individual and group attitudes are influenced by age, sex, ethnic identification, and social-economic background. Doctoral student John Beasley is proceeding with one phase of that work. Experimentation to ascertain degrees to which results might be influenced by different arrangements of items in inventory questions might help validate the instrument.

The inventory should be expanded to include similar choice questions pertaining to other occupations likely to provide employment opportunities for substantial numbers of non-college bound youth. Examples: food service, child care, domestic service, custodial repair service.

A similar inventory for use with youth aspiring to professional and managerial-level work might prove useful.

SUMMARY

This project developed a forced-choice occupational attitudes inventory designed to measure pupils' attitudes toward component dimensions of non-professional level work involved in office, retail, health service, and construction occupations. Dimensions measured are tools, materials, nature of tasks, personal relationships, and physical environment.

Pilot testing indicates that the inventory has substantial potential to provide counselors and teachers with facts about pupils' existing attitudes. Plans for further validation and standardization are in progress.

APPENDIX A

OCCUPATIONS INCLUDED IN INVENTORY, DIMENSIONS
AND DIMENSIONAL EXAMPLES

A. CONSTRUCTION

(T) Tools	1. Hammer, paint brush, welder.
(E) Environment	2. Both in and outdoors and fairly dirty.
(M) Materials	3. Wood, steel, paint.
(A) Acts	4. Pound nails, weld, paint.
(R) Relationship	5. Two or more people who must help each other.

B. OFFICE

(T) Tools	1. Typewriter, filing cabinet.
(E) Environment	2. Indoors and clean.
(M) Materials	3. Paper, pencils.
(A) Acts	4. Type, answer telephones, take messages.
(R) Relationship	5. One or more people start a job and turn it over to you.

C. SERVICE-AUTO

(T) Tools	1. Wrench, screwdriver.
(E) Environment	2. Indoors and greasy.
(M) Materials	3. Gasoline, oil.
(A) Acts	4. Find out why a car won't run, make repairs.
(R) Relationship	5. More with machines than people.

D. HEALTH AID

(T) Tools	1. Thermometers, food trays.
(E) Environment	2. Indoors and extremely clean.
(M) Materials	3. Water, bedding, medicine.
(A) Acts	4. Give medication, give baths, change beds.
(R) Relationship	5. Help people who can't help themselves.

E. RETAIL SERVICE

(T) Tools	1. Cash register, marking stamp.
(E) Environment	2. Indoors and pretty clean.
(M) Materials	3. Money, completed products.
(A) Acts	4. Give people change, handle store merchandise.
(R) Relationship	5. Wait on people, as does a store clerk.

APPENDIX B

DIRECTIONS FOR ADMINISTERING AND SCORING THE
SELECTED OCCUPATIONAL ATTITUDES INVENTORY

If administered to a group, each person should be furnished with an I.B.M. or similar answer sheet, and a booklet containing the instructions and questions. The instructions are read aloud by the test administrator who should proceed slowly so that each subject will understand what is expected of him.

A sample question is asked by the administrator who demonstrates how the subject should proceed when actual questioning begins. An appropriate example is "would you rather play baseball or basketball?" If the subject prefers baseball, he would darken the space below "A" beside example 1; if basketball, he would darken the space below "B."

When administered individually, the test administrator should give the subject a booklet and proceed as stated except for a difference in scoring. In this case, the administrator may score the subject's responses himself, directly on the First Preference Recording Form (Appendix C). The subject merely responds aloud by saying either "A" or "B" to indicate his preference for the first or second half of the forced-choice question.

The administrator records the subject's responses according to the following example. The interviewer uses "AlxBl" when asking whether the person prefers (Al) a hammer, paint brush, and welder, or (Bl) a typewriter and filing cabinet. If he answers in favor of the first choice, it would be scored as "AlxBl." If the second half of the question were preferred "Bl" would have been circled instead. This procedure is followed for each of the 90 questions.

To score an answer sheet, the answers should be transferred to the First Preference Recording Form where each ten answers can be analyzed in order to contribute a final answer. Each subject will have nine final answers which are then interpreted to him.

To determine which of the job areas is preferred in the dimensional group being analyzed, the administrator must examine the circled answers to that ten-question series. The preferred job area must be circled all four times in which it is offered. For example, to show a preference for construction tools in the first group, "Al" must be circled all four times. If none of the preferences for a group is circled four times, you may assume that the subject was unable, or lacked the desire, to show a preferred response for an occupational area for that particular dimension.

Interpretation to the subject is accomplished by showing him which job area was selected for each of the dimensional groups, and which job area was selected for each of the dimensional groups, and which job area was selected as the final "total" job choice. The significance to the subject is <u>not</u> in the job titles shown in each of the nine answers, but in the dimensions represented by them. He is able to see which dimension or dimensions was meaningful enough to him to be carried into the final "total" job chosen. He can also see the relative value which he placed on each dimension.

APPENDIX C

FIRST REFERENCE RECORDING FORM

(T)__A__(E)__C__(M)__D__(A)__B__(R)__C__
(TA)__B__(ER)__C__
(TAER)__B__
(TAMER)__B__

(T)	A2xB2	A2xC2	A2xD2	A2xE2
	B2xC2	B2xD2	B2xE2	
	C2xD2	C2xE2		
	D2xE2			
(E)	A4xB4	A4xC4	A4xD4	A4xE4
	B4xC4	B4xD4	B4xE4	
	C4xD4	C4xE4		
	D4xE4			
(M)	A3xB3	A3xC3	A3xD3	A3xE3
	B3xC3	B3xD3	B3xE3	
	C3xD3	C3xE3		
	D3xE3			
(A)	A1xB1	A1xC1	A1xD1	A1xE1
	B1xC1	B1xD1	B1xE1	
	C1xD1	C1xE1		
	D1xE1			
(R)	A5xB5	A5xC5	A5xD5	A5xE5
	B5xC5	B5xD5	B5xE5	
	C5xD5	C5xE5		
	D5xE5			
(TA)	A21xB21	A21xC21	A21xD21	A21xE21
	B21xC21	B21xD21	B21xE21	
	C21xD21	C21xE21		
	D21xE21			
(ER)	A45xB45	A45xC45	A45xD45	A45xE45
	B45xC45	B45xD45	B45xE45	
	C45xD45	C45xE45		
	D45xE45			
(TAER)	A2145xB2145	A2145xC2145	A2145xD2145	A2145xE2145
	B2145xC2145	B2145xD2145	B2145xE2145	
	C2145xD2145	C2145xE2145		
	D2145xE2145			
(TAMER)	A21345xB21345	A21345xC21345	A21345xD21345	A21345xE21345
	B21345xC21345	B21345xD21345	B21345xE21345	
	C21345xD21345	C21345xE21345		
	D21345xE21345			

APPENDIX D

SELECTED OCCUPATIONAL ATTITUDES INVENTORY

_____ 1. Sex
A. Male
B. Female

_____ 2. Race
A. Caucasian
B. Negroid
C. Mongoloid
D. American Indian
E. Other (Specify _____)

_____ 3. Age at nearest birthday

_____ 4. Education--highest grade completed

_____ 5. Father's occupation--if not living, list last occupation

_____ 6. Mother's occupation--if not living, list last occupation

_____ 7. How much thought have you given to your future work or job plans?
A. None at all
B. Very little
C. Some
D. A great deal

_____ 8. What occupation would you most like to enter?

INSTRUCTIONS

Please choose between the two choices offered in each of the following questions. I will read each question aloud while you also read it to yourself. Some choices may seem easy while others are difficult, but make your decisions being as honest with yourself as possible. Which choice would you prefer if those two choices were the only ones you had?

Please make a choice for each question. Mark an x in the square ☒ beside each of your choices.

1. Do you prefer to work with:
   ☐ a hammer and paint brush
   or
   ☐ a typewriter and filing cabinet

2. Do you prefer to work with:
   ☐ a typewriter and filing cabinet
   or
   ☐ wrenches and screwdrivers

3. Do you prefer to work with:
   ☐ wrenches and screwdrivers
   or
   ☐ thermometers and food trays

4. Do you prefer to work with:
   ☐ thermometers and food trays
   or
   ☐ a cash register and marking stamp

5. Do you prefer to work with:
   ☐ a hammer, paint brush, and welder
   or
   ☐ wrenches and screwdrivers

6. Do you prefer to work with:
   ☐ a typewriter and filing cabinet
   or
   ☐ thermometers and food trays

7. Do you prefer to work with:
   ☐ wrenches and screwdrivers
   or
   ☐ a cash register and marking stamp

8. Do you prefer to work with:
   ☐ a hammer, paint brush, and welder
   or
   ☐ thermometers and food trays

9. Do you prefer to work with:
   ☐ a typewriter and filing cabinet
   or
   ☐ a cash register and marking stamp

10. Do you prefer to work with:
    - ☐ a hammer, paint brush, and welder
    - or
    - ☐ a cash register and marking stamp

11. Would you rather work:
    - ☐ both indoors and outdoors and be fairly dirty
    - or
    - ☐ indoors and be clean

12. Would you rather work:
    - ☐ indoors and be clean
    - or
    - ☐ indoors and be greasy

13. Would you rather work:
    - ☐ indoors and be greasy
    - or
    - ☐ indoors and be extremely clean

14. Would you rather work:
    - ☐ indoors and be extremely clean
    - or
    - ☐ indoors and be pretty clean

15. Would you rather work:
    - ☐ both indoors and outdoors and be fairly dirty
    - or
    - ☐ indoors and be greasy

16. Would you rather work:
    - ☐ indoors and be clean
    - or
    - ☐ indoors and be extremely clean

17. Would you rather work:
    - ☐ indoors and be greasy
    - or
    - ☐ indoors and be pretty clean

18. Would you rather work:
    - ☐ both indoors and outdoors and be fairly dirty
    - or
    - ☐ indoors and be extremely clean

19. Would you rather work:
    - ☐ indoors and be clean
    - or
    - ☐ indoors and be pretty clean

20. Would you rather work:
    - ☐ both indoors and outdoors and be fairly dirty
    - or
    - ☐ indoors and be pretty clean

21. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ paper and pencils

22. Would you rather work with:
- ☐ paper and pencils
- or
- ☐ gasoline and oil

23. Would you rather work with:
- ☐ gasoline and oil
- or
- ☐ water, bedding, and medicine

24. Would you rather work with:
- ☐ water, bedding, and medicine
- or
- ☐ money and completed products

25. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ gasoline and oil

26. Would you rather work with:
- ☐ paper and pencils
- or
- ☐ water, bedding, and medicine

27. Would you rather work with:
- ☐ gasoline and oil
- or
- ☐ money and completed products

28. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ water, bedding, and medicine

29. Would you rather work with:
- ☐ paper and pencils
- or
- ☐ money and completed products

30. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ money and completed products

31. Would you rather:
- ☐ pound nails, weld, and paint
- or
- ☐ type, answer telephones, and take messages

32. Would you rather:
- ☐ type, answer telephones, and take messages
  or
- ☐ find out why a car won't run and make repairs

33. Would you rather:
- ☐ find out why a car won't run and make repairs
  or
- ☐ give medication, give baths, and change beds

34. Would you rather:
- ☐ give medication, give baths, and change beds
  or
- ☐ give people change and handle store merchandise

35. Would you rather:
- ☐ pound nails, weld, and paint
  or
- ☐ find out why a car won't run and make repairs

36. Would you rather:
- ☐ type, answer telephones, and take messages
  or
- ☐ give medication, give baths, and change beds

37. Would you rather:
- ☐ find out why a car won't run and make repairs
  or
- ☐ give people change and handle store merchandise

38. Would you rather:
- ☐ pound nails, weld, and paint
  or
- ☐ give medication, give baths, and change beds

39. Would you rather:
- ☐ type, answer telephones, and take messages
  or
- ☐ give people change and handle store merchandise

40. Would you rather:
- ☐ pound nails, weld, and paint
  or
- ☐ give people change and handle store merchandise

41. Would you rather work with:
- ☐ one or more people who must help each other
  or
- ☐ one or more people who start a job and turn it over to you

42. Would you rather:
- ☐ work with one or more people who start a job and turn it over to you
  or
- ☐ work more with machines than people

43. Would you rather:
- ☐ work more with machines than people
  or
- ☐ help people who can't help themselves

44. Would you rather:
- ☐ help people who can't help themselves
  or
- ☐ wait on people as does a store clerk

45. Would you rather work:
- ☐ with one or more people who must help each other
  or
- ☐ more with machines than people

46. Would you rather:
- ☐ work with one or more people who start a job and turn it over to you
  or
- ☐ help people who can't help themselves

47. Would you rather:
- ☐ work more with machines than people
  or
- ☐ wait on people as does a store clerk

48. Would you rather:
- ☐ work with one or more people who must help each other
  or
- ☐ help people who can't help themselves

49. Would you rather:
- ☐ work with one or more people who start a job and turn it over to you
  or
- ☐ wait on people as does a store clerk

50. Would you rather:
- ☐ work with one or more people who must help each other
  or
- ☐ wait on people as does a store clerk

51. Would you rather:
- ☐ pound nails, weld, paint, and use a hammer, welder, and paint brush
  or
- ☐ type, answer telephones, take messages, and use a typewriter and filing cabinet

52. Would you rather:
- ☐ type, answer telephones, take messages, and use a typewriter and filing cabinet
  or
- ☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

53. Would you rather:

☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

or

☐ give medication, give baths, change beds, and use thermometers and food trays

54. Would you rather:

☐ give medication, give baths, change beds, and use thermometers and food trays

or

☐ give people change, handle store merchandise, and use a cash register and marking stamp

55. Would you rather:

☐ pound nails, weld, paint, and use a hammer, welder, and paint brush

or

☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

56. Would you rather:

☐ type, answer telephones, take messages, and use a typewriter and filing cabinet

or

☐ give medication, give baths, change beds, and use thermometers and food trays

57. Would you rather:

☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

or

☐ give people change, handle store merchandise, and use a cash register and marking stamp

58. Would you rather:

☐ pound nails, weld, paint, and use a hammer, welder, and paint brush

or

☐ give medication, give baths, change beds, and use thermometers and food trays

59. Would you rather:

☐ type, answer telephones, take messages, and use a typewriter and filing cabinet

or

☐ give people change, handle store merchandise, and use a cash register and marking stamp

60. Would you rather:

☐ pound nails, weld, paint, and use a hammer, welder, and paint brush

or

☐ give people change, handle store merchandise, and use a cash register

61. Would you rather:

☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ stay clean working indoors with one or more people who start a job and turn it over to you

62. Would you rather:

☐ stay clean working indoors with one or more people who start a job a turn it over to you

or

☐ get greasy working indoors with machines more than with people

63. Would you rather:

☐ get greasy working indoors with machines more than with people

or

☐ stay extremely clean working indoors helping people who can't help themselves

64. Would you rather:

☐ stay extremely clean working indoors helping people who can't help themselves

or

☐ stay pretty clean working indoors waiting on people as does a store clerk

65. Would you rather:

☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ get greasy working indoors with machines more than with people

66. Would you rather:

☐ stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ stay extremely clean working indoors helping people who can't help themselves

67. Would you rather:

☐ get greasy working indoors with machines more than with people

or

☐ stay pretty clean working indoors waiting on people as does a store clerk

68. Would you rather:

☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ stay extremely clean working indoors helping people who can't help themselves

69. Would you rather:

☐ stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ stay pretty clean working indoors waiting on people as does a store clerk

70. Would you rather:

☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ stay pretty clean working indoors waiting on people as does a store clerk

71. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay clean working indoors with one or more people who start a job and turn it over to you

72. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, and get greasy working indoors with machines more than with people

73. Would you rather:

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, and get greasy working indoors with machines more than with people

or

☐ give medication, give baths, change beds, use thermometers, food trays, and stay extremely clean working indoors helping people who can't help themselves

74. Would you rather:

☐ give medication, give baths, change beds, use thermometers, food trays, and stay extremely clean working indoors helping people who can't help themselves

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, and stay pretty clean working indoors waiting on people as does a store clerk

75. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, and get greasy working indoors with machines more than with people

76. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ give medication, give baths, change beds, use thermometers, food trays, and stay extremely clean working indoors helping people who can't help themselves

77. Would you rather:

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, and get greasy working indoors with machines more than with people

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, and stay pretty clean working indoors waiting on people as does a store clerk

78. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ give medication, give baths, change beds, use thermometers, food trays, and stay extremely clean working indoors helping people who can't help themselves

79. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay pretty clean working indoors with one or more people who start a job and turn it over to you

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, and stay pretty clean working indoors waiting on people as does a store clerk

80. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, and stay pretty clean working indoors waiting on people as does a store clerk

81. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

82. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

83. Would you rather:

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

or

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

84. Would you rather:

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

85. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

86. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

87. Would you rather:

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

88. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

89. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

90. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

OE 6000 (6-66) DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D.C.

ERIC DOCUMENT RESUME

DATE OF RESUME: December, 1966

1. ACCESSION NO. | 2. ERIC SATELLITE CODE | 3. CLEARING HOUSE CONTROL NO.

4. SOURCE
U.S. Dept. of Health, Education, and Welfare
Office of Education, Bureau of Research
Final Report (6/65 - 12/66)

5. TITLE
A Forced-Choice Procedure for Measurement of Pupils' Attitudes Toward Major Dimensions of Work.
Project No. ERD-257-65

6. AUTHOR(S) Weiner, L.G., Garlington, W.K., Wipple, J.E.

7. DATE 12/66 | 8. PAGINATION 26 | 9. REFERENCES 9

10. REPORT/SERIES NO. 3

11. CONTRACT NO. OE-5-85-109

12. PUBLICATION TITLE A Forced-Choice Procedure for Measurement of Pupils' Attitudes Toward Major Dimensions of Work

13. EDITOR(S) N.A.

14. PUBLISHER Dept. of Education, Wash. State U, Pullman, Wash.

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TYPE OF RELEASE

15. ABSTRACT (250 words max.)

This project developed a forced-choice occupational attitudes inventory designed to measure pupils' attitudes toward component dimensions of non-professional level work involved in office, retail, health service, and construction occupations. Dimensions measured are tools, materials, nature of tasks, personal relationships, and physical environment.

Pilot testing indicates that the inventory has substantial potential to provide counselors and teachers with facts about pupils' existing attitudes. Plans for further validation and standardization are in progress.

16. RETRIEVAL TERMS (Continue on reverse)

Measurement
Attitudes
Occupational interests
Vocational interests
Forced-choice instruments
Occupational dimensions

17. IDENTIFIERS

Vo-Tech. Ed. R and D Project
ERD-257-65

Figure 3. ERIC Document Resume

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2. Enter date of completion of the resume in space provided in upper right corner.

3. Entry must fit into space provided; if necessary use standardized abbreviation as cited by the American Psychological Association Publication Manual. (Publication Manual may be obtained from the American Psychological Association, Order Department, 1200 17th Street, NW., Washington, D.C. 20036.)

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Field 5. Title: Enter full document title. If document comprises only a portion of the total publication or release, refer to field #12. Include subtitles if they add significantly to information in the title proper.

Enter volume numbers or part numbers, where applicable, as an added entry following the title.

If the document has been identified with a project number, enter the project number as an added entry following the volume or part numbers.

Include the type of report (whether proposal, in-progress, final, follow-up) as an added entry following the project number, where applicable. Following the type of report, enter the inclusive dates covered by the report, by month and year. (Example: 1/63 - 7/65.)

Field 6. Author(s): Enter personal author(s) (corporate author is entered in field #1), last name first. (Example: Doe, John.) If two authors are given, enter both. In the case of three or more authors, list only the principal author followed by "and others," or, if no principal author has been designated, the first author given followed by "and others." (Example: Doe, John and others.)

Field 7. Date: Enter date of release of document by month and year. (Example: 12/65.)

Field 8. Pagination: Enter total number of pages of document, including illustrations, appendices, etc. (Example: 115 p.)

Field 9. References: Enter number of references cited in the bibliography of the document. (Example: 406 ref.)

Field 10. Report/Series No.: Enter any unique number assigned to the document by the publisher or corporate source. (Example: OE-53015; LX-135.) Do not enter project numbers; these are added entries field #5.

Also enter journal citations by name of journal, volume number, and pagination. (Example: NAEB Journal, v. II, pp. 52-73.) Do not include date; date is entered in field #7.

Field 11. Contract No.: If document has been supported by the U.S. Office of Education, enter the OE contract number.

Field 12. Publication Title: If document abstracted comprises only a portion of the total publication or release, enter complete title of publication. (Examples: Four Case Studies of Programmed Instruction; The Automation of School Information Systems.) For journal titles, spell out any abbreviations. (Example: National Association of Educational Broadcasters Journal.)

Field 13. Editor(s): Enter editor(s) last name first. (Example: Doe, Mary.) If two editors are given, enter both. In the case of three or more editors, list only the principal editor followed by "and others," or, if no principal editor has been designated, the first editor given followed by "and others." (Example: Doe, Mary and others.)

Field 14. Publisher: Enter name and location (city and state of publisher.
(Example: McGraw-Hill, New York, New York.)

Field 15. Abstract: Enter abstract of document, with a maximum of 250 words.

Field 16. Retrieval Terms: Enter conceptually structurable terms which, taken as a group, adequately describe the content of the document. If terms do not fit into space provided on recto, use space allotted on verso for additional terms.

Codes: Leave blank. Codes will be assigned for internal retrieval purposes.

Field 17. Identifiers: Enter all terms which would not fit into a structured vocabulary. Examples are: trade names, equipment model names and numbers, organizations, project names (Project Headstart, Project English), code names, code numbers.

16. RETRIEVAL TERMS (*Continued*)

GPO 900-451